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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/790,712	03/03/2004	Mignard Francois	21029-00272-US	4299
30678 7590 06/04/2009 CONNOLLY BOVE LODGE & HUTZ LLP 1875 EYE STREET, N.W. SUITE 1100 WASHINGTON, DC 20006				
EXAMINER				
ZHENG, LOIS L				
ART UNIT		PAPER NUMBER		
1793				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/790,712

Applicant(s)

FRANCOIS, MIGNARD

Examiner

LOIS ZHENG

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 February 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6 and 13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6 and 13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Status of Claims

1. Claim 6 is amended in view of applicant's amendment filed 4 February 2009.
New claim 13 is added. Therefore, claims 6 and 13 are currently under examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. JP 2001-059133(Shimizu), and further in view of Delaunay et al. US 6,761,779 B2 (Delaunay), and further in view of Yanagida et al. US 4,059,494 (Yanagida).

Shimizu teaches a continuous hot-dip galvanizing process comprising passing the steel sheet through an oxidation treatment in air to form an oxide film before entering a reduction annealing furnace prior to hot dip galvanization(abstract, paragraphs[0010-0012]). Shimizu further teaches that the oxidation temperature should be maintained at 200-650°C by suitable heating methods such as induction heating, and the treatment time should be maintained at 5-100sec(paragraph 0011-0012)).

However, Shimizu does not explicitly teach the claimed control if oxidation treatment time by modifying the length of strip between the outlet of the heating zone upstream of the furnace and the inlet of the galvanizing furnace. In addition, Shimizu does not explicitly teach passing the strip over a combination of fixed and moving rollers

for allowing the length of strip between the heating means and the inlet of the furnace to be varied.

Delaunay teaches that a metal strip is preheated in a preheating zone before being sent a galvanizing furnace(abstract). Delaunay also teaches that oxidation takes place in the preheating zone to form an oxide layer on the metal strip which is subsequently removed by reduction in the galvanizing furnace by heating in hydrogen (col. 1 lines 7-10, col. 2 lines 14-23). Delaunay further teaches that the length of the preheating zone can be varied and is tailored to the tonnage of the treatment line and the cross section of the product or the speed of the line(col. 3 lines 3-11). Furthermore, the length of the preheating zone is one of the variables used to improve the quality of the end-product over very wide production ranges(col. 3 lines 16-24).

Regarding claim 6, since Delaunay teaches that the length of the preheating zone is a result effective variable, one of ordinary skill in the art would have found it obvious to have varied length of strip between the outlet of the heating zone upstream of the furnace and the inlet of the galvanizing furnace in the process of Shimizu in order to achieve improved product quality as taught by Delaunay. The claimed heating zone upstream of the furnace and the inlet of the galvanizing furnace define a zone during which oxidation of the metal strip occurs.

Yanagida teaches a process for continuous electrolytic coloring of aluminum strip(abstract). During the coloring process, Yanagida further teaches using a set of fixed rollers(Fig. 2 #4) and a set of moving rollers(Fig. 2 #11,11'), wherein the distance

between the moving rollers can be adjusted in order to adjust the color treatment time(col. 5 lines 46-57).

Therefore, it would have been obvious for one of ordinary skill in the art to have incorporated the fixed and moving rollers as taught by Yanagida into the oxidation treatment zone of Shimizu in view of Delaunay in order to adjust the oxidation treatment time in the process of Shimizu in view of Delaunay for improved product quality.

In addition, the oxidation temperature of 200-650°C as taught by Shimizu overlaps the claimed oxidation temperatures of 150-400°C. Therefore, a prima facie case of obviousness exists. See MPEP 2144.05. The selection of claimed oxidation temperature range from the disclosed range of Shimizu would have been obvious to one skilled in the art since Shimizu teaches the same utilities in its' disclosed oxidation temperature range.

Regarding the claimed controlling of temperature/time pair, Shimizu teaches maintaining the oxidation temperature and time in a preferred range. In addition, the oxidation temperature and treatment time has an inverse relationship, that is, higher oxidation temperature leads to lower treatment time to produce the same oxide film thickness, and vise versa. Therefore, one of ordinary skill in the art would have found it obvious to have controlled the temperature/time pair in the process of Shimizu in order to control the thickness of the oxide film.

4. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu et al. JP 2001-059133(Shimizu), and further in view of Delaunay et al. US

6,761,779 B2 (Delaunay), and further in view of Wangerin et al. US 5,480,499 (Wangerin).

The teachings of Shimizu in view of Delaunay are discussed in paragraph 3 above. However, Shimizu in view of Delaunay do not explicitly teach varying the length of strip between the heating means and the inlet of the furnace by passing the strip over a combination of fixed and moving rollers.

Wangerin teaches using a plurality of upper and lower guide rollers for passing a steel strip and adjusting the length of the strip by adjusting the upper guide rollers(Fig. 4, col. 6 lines 13-27).

Regarding claim 6, it would have been obvious for one of ordinary skill in the art to have incorporated upper and lower fixed and moving rollers as taught by Wangerin into the oxidation treatment zone of Shimizu in view of Delaunay in order to adjust the oxidation treatment time by adjusting the length of the strip going through the oxidation treatment zone in the process of Shimizu in view of Delaunay to achieve improved product quality.

The remaining claim limitations are rejected for the same reason set forth in paragraph 3 above.

Regarding claim 13, Wangerin teaches the claimed steel strip rolling up over 180 degrees around moving rollers as claimed.

Response to Arguments

5. Applicant's arguments filed 4 February 2009 have been considered but are persuasive.

In the remarks, applicant argues that Yanagida is not related to galvanization, therefore, providing no motivation for one skilled in the art to combine Yanagida with Shimizu and Delaunay.

The examiner does not consider applicant's argument persuasive because Yanagida also describes a process for treatment of steel strip during which the treatment time is controlled by adjusting the length of the strip going through the treatment process via the use of a combination of fixed and moving rollers. In addition, Delaunay teaches that the length of the preheating/oxidation zone, prior to galvanization can be varied to improve the quality of the end product. Therefore, one of ordinary skill in the art would have find it obvious to adopt the technique of using a combination of fixed and moving rollers as taught by Yanagida into the process of Shimizu in view of Delaunay in order to achieve the control of oxidation time to achieve desired final product qualities as taught by Delaunay.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LOIS ZHENG whose telephone number is (571)272-1248. The examiner can normally be reached on 8:30am - 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art
Unit 1793

LLZ

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